

PAT-NO: JP411070490A

DOCUMENT-IDENTIFIER: JP 11070490 A

TITLE: COLLISION DETECTING METHOD FOR INDUSTRIAL ROBOT

PUBN-DATE: March 16, 1999

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APPL-NO: JP10061985

APPL-DATE: February 27, 1998

INT-CL (IPC): B25J019/06, G05B019/18 , G05D003/00

ABSTRACT:

PROBLEM TO BE SOLVED: To minimize a load acting on the drive system of an industrial robot including its arms and reduction gears at a collision of one arm or end effector in the arm with an obstacle, by shortening the timelag from the collision to the detection thereof.

SOLUTION: An industrial robot has a structure where a drive shaft motor for driving a joint is coupled to an arm by way of a reduction gear. The robot employs an observer, which calculates an estimated disturbance torque that the motor is to receive and subtracts a know disturbance torque from the estimated torque to compute the collision component of the disturbance torque. The observer determines that a collision occurs when the collision component of the disturbance torque exceeds the first specified value or when the variation of the component exceeds the second specified value.

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